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*Publication date:*  
2008

*Document Version*  
Publisher's PDF, also known as Version of record

*Citation for published version (APA):*  
Mortensen, J. E. (2008). *Exploring Social Learning through Upstream Engagement in Science and Technology*. Paper presented at Action Research: Social Innovation and Societal Change, Roskilde, Denmark.

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# Exploring Social Learning through Upstream Engagement in Science and Technology

Discussion Paper. X International Summer School in Lifelong Learning.  
Roskilde University. Denmark. August 2008.

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**DRAFT**

**This discussion paper deliberates on how the concept of social learning can be used for evaluating upstream engagement initiatives in science and technology. The paper briefly introduces to the concept of upstream engagement and a concrete case, the UK Citizen Science for Sustainability project (SuScit), as an outset for discussing how the concept of social learning can be used for analysing and understanding relations between citizen participation, Science and research, and sustainability. A number of relevant research questions and methodological considerations are distilled as an inspiration for further discussion.**

## **Introduction: The Need for Social Learning towards Sustainability**

Seen in a historic perspective humans have been inflicting greater change to the Earth during the last few centuries than ever before in the entire human history. From the outset of the western industrial revolution society has gone through a technological, socio-economic and cultural transformation more voluminous than anybody would probably have been able to envisage. And during the last few decades it has become still more evident, that global environmental and socio-demographic effects determined by this development might be more challenging than we have yet been able to *imagine*. This paper is about exploring the potentials of human imagination. It deliberates on human experience and imagination as an outset for tackling one of the main issues of modernism: to cope with western socio-technological development and the challenges and changes it implies. Acknowledging the still more crucial role ascribed to research and development in

western societies, the paper focuses on democratic initiatives to deliberate on science's role on a societal level and in particular citizen's participation directly related to science and technology. The aim is hereby to raise the question, how such democratic deliberations might help research in contributing to sustainability in a broader sense, and how to gain knowledge for supporting such processes.

### **Understanding upstream engagement in Science and Technology**

Concurrent with the increasing role of science and technology in western societies, the necessity of adequate ways to cope with this historical development has been a pivotal theme in social science throughout the 20<sup>th</sup> century. Identifying and articulating instrumental rationality as, at least one of, the underlying dynamics and challenges in modern western development, has been a major issue in sociological critical theory. Still one might question, whether such insights have yet succeeded in transforming into a broader agenda for societal development. Maybe, quite one contrary, science and technology more and more often seem to be perceived as *the* driver for western development. This, however, raises the question of the qualitative nature, aims and values of such modern 'Sciences' and how to understand these in a societal context.

In recent years the insight, that the development of more co-evolving dynamics and transcendent borders between science and society, could have as much impact on the very nature of science itself as on society, has been articulated in a number of slightly different ways, from Funtowicz and Ravetz's idea of post-normal science (1993;1999) over the concept of the triple helix (e.g. see Shinn 2002) to Nowotny, Scott and Gibbons theory of mode-2 science (1994; 2001). Whether referring to science policy; upcoming forms of research based-businesses; changed understandings of scientific epistemologies; or perceptions in the wider public, for whom science and technology has turned into inevitable aspects of modern living, these understandings has conceptualised science in a societal context and challenged the idea of science as merely distinct discipline.

In 2004 the British think tank DEMOS<sup>i</sup> contributed to the agenda of participative practice and research with their influential idea of 'upstream engagement in science and technology'. Demos articulated that citizens' participation is not only relevant for the assessment of new technologies ready for launching the market; rather participation should be seen as a more integrated part of scientific research and innovation itself (Wilsdon & Willis 2004). Initial initiatives inspired by this approach are still on the cutting-edge and it is yet to be seen whether new and successful participative practices will emerge. However, from an analytic perspective, an interesting underlying question is whether participative methods

can foster mutual learning across scientific communities and wider society hereby aiming to contribute with new perspectives to scientific research and development.

Despite an increasing academic interest in the field of upstream engagement practical experience is still limited. Novel upstream engagement projects are still on the cutting-edge and few in numbers (Wilsdon, Wynne and Stilgoe 2005) and more traditional methods for participative technology assessment might not be appropriate in this emerging field of upstream engagement for a number of reasons (Egmose Mortensen 2007): First, the responsive approach in pTA tends to discuss how forthcoming science and technology challenge society, rather than exploring how wider societal deliberations could contribute to the future of science. Secondly, as pTA is mainly designed to provide politicians with advices on how to regulate science and technology, existing methods do not have explicit focus on fostering mutual learning across citizens and experts themselves. Therefore, there is currently a research gap in the field of upstream engagement calling for undertaking new projects developing approaches and methodologies, and analysing learning processes in such upstream engagement processes. The UK action research project Citizen Science for Sustainability, which implementation I am currently employed to take part in, is one of such projects.

#### **A case-study: Citizen Science for Sustainability**

Citizen Science for Sustainability (SuScit) is an action research project aiming to develop a 'community-led research agenda for sustainable development'. The project is based on the idea to involve participants in a bottom-up approach to research: Instead of taking the outset in developing new knowledge and technologies and then consulting the public, SuScit aims to explore local resident's community perspectives on urban sustainability as an outset for collaborating with researchers and stakeholders developing an agenda for how research might contribute towards greater urban sustainability. Compared to various government responses throughout the last decades trying tackle *the lack of public trust in science* by public consultations (e.g. disputes over nuclear power; genetic modified organisms; nano-technology), the outset of the SuScit project is that taking the community perspective serious might imply the development of a research agenda which qualitatively *differ* from the current mainstream (Seen from a critical theoretical perspective the SuScit project hereby acknowledges, that the underlying reason for public dis-trust in science might not be ignorance merely; rather public scepticism can be seen as an emerging symptom of the inherent conflict between scientific instrumentalism and communicative rationalism of citizens' everyday life world perspective).

The SuScit project is based on former UK research in the field of environmental justice documenting that those living in the worst urban environments in the UK are often socially marginalised groups without the economical choice to move to a new and more favourable community and rarely having a say about their local area or included in consultation activities (Lucas, Walker and Eames et. al. 2004). From this outset SuScit aims to work with a number of socially marginalised groups as a critical case for understanding the challenges towards greater urban sustainability. The SuScit action research programme is currently running in one of England's more deprived areas by involving three groups of citizens from a local community in Islington, North London. Throughout the spring 2008 these three citizen's panels have been working with a panel of 'sustainability practitioners' and researchers which professionally works with practical and research aspects of urban sustainability respectively, to develop new ideas for sustainable research.

The SuScit fieldwork process design includes a number of workshop, meetings and exercises aiming to root and develop a sustainability agenda in citizens lived experience; collaboratively develop scenarios of sustainable futures; and let researchers and practitioners use this as a basis for evolving new research ideas to overcome the challenges toward greater sustainability. A number of creative techniques; film making; and participative methods have been used for empowering and equalling participants throughout the project.

**Box 1:** The phases of the SuScit Action Research Fieldwork Programme.

**Phase 1: Recruitment and Engagement**

Five panels were recruited for the project: Three panels of 10-12 local residents each; a panel of researchers and a panel of sustainability practitioners working in fields linked to urban sustainability.

**Phase 2: Exploring Narratives and Perceptions of Urban Sustainability**

Each of the five panels had an initial facilitated meeting discussing perceptions of urban sustainability. The residents panels undertook a 6 week series of participative filming exercises which aimed freely to discuss the social and environmental issues that which mattered to the participants; skill them up to develop their own ideas and storyboards and finally to do short films about living in their local area.

**Phase 3: Sharing Local Knowledge and Experience**

Based on the participative filming projects all 5 panels met for a whole day workshop discussing the issues raised from the films and sharing residents knowledge and perspectives about the local area.

**Phase 4: Visioning Sustainable Communities**

At another whole day workshop all participants worked creatively with different visioning exercises, imagining what an ideal sustainable community might look like in a 20-year perspective.

**Phase 5: Developing a Community Led Research Agenda for Urban Sustainability**

Based on the previous discussions the researchers and practitioners were invited for a two-day conference aiming to articulate overall strategic research priorities and develop ideas for specific projects based on the community perspectives. The ideas were presented back to and evaluated by the community participants at another workshop.

**Phase 6: Dissemination**

Based on the various ideas generated through the project, a number of dissemination activities and network building to support project outcome and dissemination is now to be established related to the local community and the research community involved.

By the design of this process the aim was to develop a community-led science and engineering research agenda for environment and sustainability, drawing upon the results of research with local stakeholders and excluded communities. Additionally a trans-disciplinary network ([www.SuScit.org.uk](http://www.SuScit.org.uk)) has been established to facilitate effective dialogue, knowledge transfer and ongoing collaboration between EPSRC researchers and local stakeholders working the fieldwork area and similar communities.

From a sociological perspective the SuScit project is interesting not only because of the design and methodology but also in the institutional and societal context. The project is funded by the British 'Engineering and Physical Sciences Research Council' (EPSRC)<sup>ii</sup> and will feed into the EPSRC Sustainable Urban Environment (SUE) programme<sup>iii</sup>. The programme aims to strengthen "the capability of the UK research base in sustainability issues within the urban environment in both breadth

and depth; provide an identifiable source of multidisciplinary academic excellence able to respond to the needs of the end users of research in industry, commerce, the service and public sectors through a programme of collaborative research and technology transfer; develop and promote a strategic research agenda to address sustainability in the urban environment for the 21st century and beyond” (EPSRC 2007). The Citizen Science for Sustainability project aims to develop and feed in new ideas to the next multi million research round of the Sustainable Urban Environment programme and is thereby based on an institutional interest in opening up the research agenda towards problems faced by ‘end-users’ and the need to develop new methods for approaching this challenge. It is from the position of being directly involved in the implementation of the SuScit project that I am currently undertaking a PhD to explore the role and dynamics of social learning between local communities and research communities.

### **Exploring Social Learning through Upstream Engagement in Science and Technology**

The outset for my recently initiated PhD study is to explore and understand how research communities can learn from engaging with local communities; residents human lived experience; and everyday life perspectives. In order to approach this two-way process I am building on a concept of ‘social learning’. The term is often defined in social science from a constructivist perspective by conceptualising ‘knowledge creation’ as stakeholders’ exchange and recombination of new discourses. However, based on the outset of working with marginalised groups; acknowledging role of power between experts and lay citizens; and realising the fact that bringing residents, researchers and local stakeholders to the same table does not necessarily give lay participants a say, it seems appropriate critically to conceptualise ‘social learning’ from a perspective building on and thereby shifting over the power to favour the lay-participants’ everyday life perspective. Accepting this methodological approach critical theory offers an alternative concept of ‘social learning’ as an active *social process* based on mutually exchange of participants different types of lived experiences, insights and perspectives (Nielsen and Nielsen 2006; 2007). In this conceptualisation ‘social learning’ is not just *any* discursive mediation, but a *social process* rooted in the interactive use of different forms of *human lived experience*.

The focal point of choosing this critical theoretical approach (which *is* a methodological choice) is that it gives the discussion of upstream engagement a specific tinting; by analytically looking from a life world perspective it is possible to ask the question, how *sustainability research might be embedded in human life contexts*.

The concept of 'embeddedness', inspired by Karl Polanyi (1944), is used by Nielsen and Nielsen (2006; 2007) to conceptualise how 'science' has become socially and environmentally dis-embedded from an everyday life context and to argue for a more 're-embedded' science (A way of thinking which in *some* sense has connotations to theories such as Nowotny and Gibbons 'modus-2 science'). By analytically asking the question 'how is this research embedded in a societal context' it becomes relevant to take into account citizens' everyday life perspectives and rationalities, and the SuScit project offers a useful case to ask this question and to explore the involved participants' capabilities for feeding contextual community experiences into the research community as part of developing ideas for future research towards greater urban sustainability.

However, this research, although still at initial stage, also raises a number of crucial questions, which needs to be explored in depth to understand the dynamics of social learning in upstream engagement.

First, it seems necessary to have a critical look at the concrete processes, dynamics and discourses evolving as part of the SuScit project, so as to understand their origins and the connections to research-based, institutional or community-based roots. In recent years the very fundamental critique of citizen participation has been raised that participative initiatives rather than empowering citizens often encloses lay perspectives in already existing discourses and power structures (Cooke and Kothari 2001). In the UK context the concept 'phony participation' is being used underlining the dilemma that the increasing number of engagement processes in various contexts does not necessarily make much difference or change the underlying power balances. Cooke and Kothari's scepticism is substantial as it articulates how engagement on a 'micro-level' might just feed into pre-existing discourses on a 'macro-level' adding a critical dimension to the good intentions of local empowerment.

Secondly, and deriving from the considerations above, it seems relevant to understand the SuScit project in its wider societal and institutional setting. Even though analysing and evaluating 'social learning' might have to take the outset in understanding inter-personal exchange of human knowledge, experience and perspectives, understanding these exchange processes at a overall community; institutional or even societal level clearly is crucial to estimate whether social learning is an appropriate concept to use in the research field of upstream engagement.

Third, the potentials of the community perspective in relation to future agendas for sustainability research needs to be examined. During a recent SuScit workshop



one of the participating scientist noted that 'the residents perspectives a *far* from sustainable'. Her argument was that there are a huge number of basic needs in the local community that yet has to meet before it is relevant to ask the residents to think about sustainable solutions for the future. The example is interesting because it makes clear existence of different perceptions of 'sustainability' in the local community and in the research community's discourses. Taking into account the global nature of many emerging environmental problems the discrepancy between expert vs. lay discourses; business-driven green concepts vs. basic human needs; or cultural vs. environmental 'sustainability' is not neglect able. Trying to understand such inherent paradoxes (or interdependencies) might therefore be an important step furthering concepts of 'sustainability' and understanding how research might contribute in such direction.

Comments to this draft are warmly welcome at [jem@ruc.dk](mailto:jem@ruc.dk) or 0044 7912 7514 93.

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<sup>i</sup> Demos: <http://www.demos.co.uk/>

<sup>ii</sup> Engineering and Physical Science Research Council (EPSRC):  
<http://www.epsrc.ac.uk/default.htm>

<sup>iii</sup> EPSRC Sustainable Urban Environment programme (SUE):  
<http://www.epsrc.ac.uk/ResearchFunding/Programmes/EEC/Activities/SUE/default.htm>